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Atty. Docket No.:	8790.0003-00	Appln. No.:	09/991,498	
Applicants:	John P. DONOGHUE et al.			
Filing Date:	November 14, 2001	Group:	3736	

		U.S. PATEN	T DOCUMENTS			
Examiner Initial*	Document Number	Issue Date	Name	Class	Sub Class	Filing Date If Appropriate
\$S	4,461,304	7/24/84	Kuperstein			
15	4,878,913	11/7/89	Aebischer et al.			-
45	5,037,376	8/6/91	Richmond et al.			
45	5,215,088	6/1/93	Normann et al.			
45	5,325,865	7/5/94	Beckman et al.			
45	5,361,760	11/8/94	Normann et al.			
45	5,617,871	4/8/97	Burrows			
4S	5,638,826	6/17/97	Wolpaw et al.			
45	5,687,291	11/11/97	Smyth		B	FCFIVED
35	5,692,517	12/2/97	Junker		1 1	P 0 4 2003
38	5,735,885	4/7/98	Howard, III et al.		1	1
15	5,758,651	6/2/98	Nygard et al.		TECHNO	OGY CENTER R3700
35	5,843,093	12/1/98	Howard, III			
cls	5,843,142	12/1/98	Sultan			
46	5,855,801	1/5/99	Lin et al.			
3	5,873,840	2/23/99	Neff			
\$	5,928,228	7/27/99	Kordis et al.			
16	5,938,688	8/17/99	Schiff			
£5	5,938,689	8/17/99	Fischell et al.			
15	5,938,690	8/17/99	Law et al.			
K	6,001,065	12/14/99	DeVito			
\$2	6,006,124	12/21/99	Fischell et al.			
X	6,016,449	1/18/2000	Fischell et al.			
Is	6,024,700	2/15/2000	Nemirovski et al.			
45	6,024,702	2/15/2000	Iversen		i	
45	6,027,456	2/22/2000	Feler et al.			
<u> </u>	6,038,477	3/14/2000	Kayyali			

SEP 0 3 2003 ENFORMATION DISCLOSURE CITATION

Atty. Docket No.:	8 49 A003 Total	Appln. No.:	09/991,498	
Applicants:	John P. DONOGHUE et al.			
Filing Date:	November 14, 2001	Group:	3736	

	U.S. PATENT DOCUMENTS					
Examiner Initial*	Document Number	Issue Date	Name	Class	Sub Class	Filing Date If Appropriate
15	6,061,593	5/9/2000	Fischell et al.			
	6,092,058	7/18/2000	Smyth			
	6,113,553	9/5/2000	Chubbuck			
	6,125,300	9/26/2000	Weijand et al.			
	6,128,538	10/3/2000	Fischell et al.			
	6,134,474	10/17/2000	Fischell et al.			
	6,154,678	11/28/2000	Lauro			
	6,161,045	12/12/2000	Fischell et al.			
	6,163,725	12/19/2000	Peckham et al.			
	6,169,981	1/2/2001	Werbos			
	6,171,239	1/9/2001	Humphrey			
	6,175,762	1/16/2001	Kirkup et al.			
	6,181,965	1/30/2001	Loeb et al.			
	6,185,455	2/6/2001	Loeb et al.			RECEIVED
	6,216,045	4/10/2001	Black et al.			SEP 0 4 2003
	6,224,549	5/1/2001	Drongelen		TECH	OLOGY CENTER R3700
	6,240,315	5/29/2001	Mo et al.			
	6,254,536	7/3/2001	DeVito			"
	6,280,394	8/28/2001	Maloney et al.			
	6,353,754	3/5/2002	Fischell et al.			
	6,354,299	3/12/2002	Fischell et al.			
	6,358,202	3/19/2002	Arent			
	6,360,122	3/19/2002	Fischell et al.			
	6,427,086	7/30/2002	Fischell et al.			
	6,459,936	10/1/2002	Fischell et al.			
	6,466,822	10/15/2002	Pless			_
	6,473,639	10/29/2002	Fischell et al.			



 Atty. Docket No.:
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 Appln. No.:
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 Applicants:
 John P. DONOGHUE et al.
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 Filing Date:
 November 14, 2001
 Group:
 3736

		U.S. PATEN	T DOCUMENTS			
Examiner Initial*	Document Number	Issue Date	Name	Class	Sub Class	Filing Date If Appropriate
15	6,480,743	11/12/2002	Kirkpatrick et al.			

	OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)
35	
	U.S. Patent Application Publication No. US 2001/0023368 A1, September 20, 2001, Black et al.
	U.S. Patent Application Publication No. US 2001/0027336 A1, October 4, 2001, Gielen et al.
	U.S. Patent Application Publication No. US 2001/0029391 A1, October 11, 2001, Gluckman et al.
	U.S. Patent Application Publication No. US 2001/0051819 A1, December 13, 2001, Fischell et al.
	U.S. Patent Application Publication No. US 2001/0056290 A1, December 27, 2001, Fischell et al.
	U.S. Patent Application Publication No. US 2002/0002390 A1, January 3, 2002, Fischell et al.
	U.S. Patent Application Publication No. US 2002/0013612 A1, January 31, 2002, Whitehurst
	U.S. Patent Application Publication No. US 2002/0016638 A1, February 7, 2002, Mitra et al.
	U.S. Patent Application Publication No. US 2002/0099412 A1, July 25, 2002, Fischell et al.
	U.S. Patent Application Publication No. US 2002/0169485, November 14, 2002, Pless et al.
	U.S. Patent Application Publication No. US 2003/0083716, May 1, 2003, Nicolelis et al.
	U.S. Patent Application Publication No. US 2003/0093129, May 15, 2003, Nicolelis et al.
	International Publication No. WO 03/035165, May 1, 2003, Nicolelis et al.
	International Publication No. WO 03/037231, May 8, 2003, Nicolelis et al.
	Kensall D. Wise et al., "An Integrated-Circuit Approach to Extraceullar Microelectrodes," IEEE Transactions on Biomedical Engineering, Vol. BME-17, No. 3, July 1970, pp 238-247
	Donald R. Humphrey et al., "Predicting Measures of Motor Performance from Multiple Cortical Spike Trains," Science, New Series, Volume 170, Issue 3959, November 13, 1970, pp 758-762
	A. Bohg, "Ethylene Diamine-Pyrocatechol-Water Mixture Shows Etching Anomaly in Boron-Doped Silicon," Journal of the Electrochemical Society, Vol. 118, No. 2, February 1971, pp 401-402
	Donald R. Humphrey, "Relating Motor Cortex Spike Trains to Measures of Motor Performance," Department of Physiology, Emory University, Brain Research, No. 40, 1972, pp 7-18
	Arnold Starr et al., "An Evaluation of Photoengraved Microelectrodes for Extracellular Single-Unit Recording," IEEE Transactions on Biomedical Engineering, Vol. BME-20, No. 4, July 1973, pp 291-293
	Kensall D. Wise et al., "A Low-Capacitance Multielectrode Probe for Use in Extracellular Neurophysiology," IEEE Transactions on Biomedical Engineering, Vol. BME-22, No. 3, May 1975, pp 212-219



Atty. Docket No.:	8790.0003-00	Appln. No.:	09/991,498	RECEIVED
Applicants:	John P. DONOGHUE et al.			SED O 4 coop
Filing Date:	November 14, 2001	Group:	3736	3EP # 4 2003

·	TECHNOLOGY CENTER R3700
	OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)
45	V. B. Mountcastle et al., "Posterior Parietal Association Cortex of the Monkey: Command Functions for Operations Within Extrapersonal Space," The Journal of Neurophysiology, Vol. 38, No. 4, 1975, pp 871-908
	Edward M. Schmidt, "Single Neuron Recording From Motor Cortex as a Possible Source of Signals for Control of External Devices," Annals of Biomedical Engineering, Vol. 8, 1980, pp 339-349
	A. J. S. Summerlee et al., "The effect of behavioural arousal on the activity of hypothalamic neurons in unanaesthetized, freely moving rats and rabbits," Proceedings of the Royal Society of London Series B-Biological Sciences, January 1982, pp 263-272
	Spencer L. BeMent, et al., "Solid-State Electrodes for Multichannel Multiplexed Intracortical Neuronal Recording," IEEE Transactions on Biomedical Engineering, Vol. BME-33, No. 2, February 1986, pp 230-241
	Apostolos P. Georgopoulos et al., "Neuronal Population Coding of Movement Direction," Science, Vol. 233, September 26, 1986, pp 1416-1419
	Kenneth L. Drake et al., "Performance of Planar Multisite Microprobes in Recording Extracellular Single-Unit Intracortical Activity," IEEE Transactions on Biomedical Engineering, Vol. 35, No. 9, September 1988, pp 719-732
	Patrick K. Campbell et al., "A chronic intracortical electrode array: Preliminary results," Journal of Biomed. Material Res.: Applied Biomaterials, Vol. 23, No. 2, 1989, pp 245-259
	Andrew R. Mitz et al., "Learning-dependent Neuronal Activity in the Premotor Cortex: Activity during the Acquisition of Conditional Motor Associations," The Journal of Neuroscience, Vol. 11, No. 6, June 1991, pp 1855-1872
	Patrick K. Campbell et al., "A Silicon-Based, Three-Dimensional Neural Interface: Manufacturing Processes for an Intracortical Electrode Array," IEEE Transactions, 1991, pp 758-768
	A. C. Hoogerwerf et al., "A Three-Dimensional Neural Recording Array," IEEE Transactions, 1991, pp 120-123
	Gregory T. A. Kovacs et al., "Regeneration Microelectrode Array for Peripheral Nerve Recording and Stimulation," Transactions on Biomedical Engineering, Vol. 39, No. 9, September 1992, pp 893-902
	Kelly E. Jones et al., "A Glass/Silicon Composite Intracortical Electrode Array," Annals of Biomedical Engineering. Vol. 20, 1992, pp 423-437
	Miguel A. L. Nicolelis et al., "Induction of immediate spatiotemporal changes in thalamic networks by peripheral block of ascending cutaneous information," Letters to Nature, Vol. 361, February 11, 1993, pp 533-536
	Reinhard Eckhorn et al., "A new method for the insertion of multiple microprobes into neural and muscular tissue, including fiber electrodes, fine wires, needles and microsensors," Journal of Neuroscience Methods, Vol. 49, Nos. 1/2, 1993, pp 175-179
	Craig T. Nordhausen et al., "Optimizing recording capabilities of the Utah Intracortical Electrode Array," Brain Research, Vol. 637, Nos. 1/2 , February 21, 1994, pp 27-36



	SP 0 3 2003 24) REFORMATION	N DISCLOSURE	CITATION	OMB No. 0651-0011
Atty. Docket No.:	8790.0003-00	Appln. No.:	09/991,498	RECEIVE
Applicants:	John P. DONOGHUE et al.			SEP 0 4 2003
Filing Date:	November 14, 2001	Group:	3736	TECHNOLOGY CENTER R3700

	OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)
13	Jamille F. Hetke et al., "Silicon Ribbon Cables for Chronically Implantable Microelectrode Arrays," IEEE Transactions on Biomedical Engineering, Vol. 41, No. 4, April 1994, pp 314-321
	Miguel A. L. Nicolelis et al., "Spatiotemporal Structure of Somatosensory Responses of Many- Neuron Ensembles in the Rat Ventral Posterior Medial Nucleus of the Thalamus," The Journal of Neuroscience, Vol. 14, No. 6, June 1994, pp 3511-3532
	Arnold C. Hoogerwerf et al., "A Three-Dimensional Microelectrode Array for Chronic Neural Recording," IEEE Transactions on Biomedical Engineering, Vol. 41, No. 12, December 1994, pp 1136-1146
	Camilo Toro et al., "8-12 Hz rhythmic oscillations in human motor cortex during two-dimensional arm movements: evidence for representation of kinematic parameters," Departments of Neurology, Neurosurgery, and Physiology, University of Minnesota; MINCEP Epilepsy Care, P.A.; The Minnesota Epilepsy Group of United and St. Paul Children's Hospital; and Human Motor Control Section, National Institute of Neurological Disorders and Stroke, National Institutes of Health, Electroencephalography and Clinical Neurophysiology, No. 93, 1994, pp 390-403
	Anthony L. Owens et al., "Multi-electrode array for measuring evoked potentials from surface of ferret primary auditory cortex," Journal of Neuroscience Methods, Vol. 58, Nos. 1/2, May 1995, pp 209-220
	Miguel A. L. Nicolelis et al., "Sensorimotor Encoding by Synchronous Neural Ensemble Activity at Multiple Levels of the Somatosensory System," Science, Vol. 268, June 2, 1995, pp 1353-1358
	Jerome N. Sanes et al., "Shared Neural Substrates Controlling Hand Movements in Human Motor Cortex," Science, Vol. 268, June 23, 1995, pp 1775-1777
	D. M. Halliday et al., "A Framework for the Analysis of Mixed Time Series/Point Process Data- Theory and Application to the Study of Physiological Tremor, Single Motor Unit Discharges and Electromyograms," Progress in Biophysics Molecular Biology, Vol. 64, Nos. 2/3, 1995, pp 237-278
	Qing Bai et al., "A High-Yield Process for Three-Dimensional Microelectrode Arrays," Solid-State Sensor and Actuator Workshop, Hilton Head, South Carolina, June 2-6, 1996, pp 262-265
	Changhyun Kim et al., "A 64-Site Multishank CMOS Low-Profile Neural Stimulating Probe," IEEE Journal of Solid-State Circuits, Vol. 31, No. 9, September 1996, pp 1230-1238
	Gwo-Ching Chang et al., "Real-time implementation of electromyogram pattern recognition as a control command of man-machine interface," Medical Engineering Phys., Vol. 18, No. 7, 1996, pp 529-537
	P. Nisbet, "Integrating assistive technologies: current practices and future possibilities," Med. Eng. Phys., Vol. 18, No. 3, 1996, pp 193-202
	Miguel A. L. Nicolelis et al., "Reconstructing the Engram: Simultaneous, Multisite, Many Single Neuron Recordings," Neuron, Vol. 18, April 1997, pp 529-537
	TR Scott et al., "The Monitoring of Tendon Tension with an Implantable Intratendon Probe and Its Use in the Control of Neuroprostheses," IEEE Transactions on Rehabilitation Engineering, Vol. 5, No. 2, June 1997, pp 233-235

SE 0 3 2003 ENFORMATION DISCLOSURE CITATION

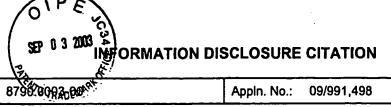
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Atty. Docket No.:	8790.08d9A98	Appln. No.:	09/991,498	SFP 0 4 2000
Applicants:	John P. DONOGHUE et al.			TECHNOLOGY
Filing Date:	November 14, 2001	Group:	3736	TECHNOLOGY CENTER R3700

	OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)
15	Barbara M. Faggin et al., "Immediate and simultaneous sensory reorganization at cortical and subcortical levels of the somatosensory system," Proc. Natl. Acad. Science USA, Vol. 94, August 1997, pp 9428-9433
	Nicolelis, Miguel A.L., "Trigeminal System Plasticity During Facial Anethesia," Department of Health and Human Services, Public Health Service, Grant No. 2 R01 DE11451-05, Including Summary Statement, October, 1997
	Robert M. Bradley et al., "Long term chronic recordings from peripheral sensory fibers using a sieve electrode array," Journal of Neuroscience Methods, Vol. 73, 1997, pp 177-186
	David K. Warland et al., "Decoding Visual Information From a Population of Retinal Ganglion Cells," The American Physiological Society, 1997, pp 2336-2350
	Steven P. Wise et al., "Premotor and Parietal Cortex: Cortiococortical Connectivity and Combinatorial Computations," Annual Review of Neuroscience, Vol. 20, 1997, pp 25-42
	P. R. Kennedy et al., "Restoration of neural output from a paralyzed patient by a direct brain connection," NeuroReport, Vol. 9, No. 8, June 1998 pp 1707-1711
	Paolo Dario et al., "Neural Interfaces for Regenerated Nerve Stimulation and Recording," IEEE Transactions on Rehabilitation Engineering, Vol. 6, No. 4, December 1998, pp 353-363
	Nicholas G. Hatsopoulos et al., "Information about movement direction obtained from synchronous activity of motor cortical neurons," Proc. Natl. Acad. Sci. USA, Vol. 95, December 1998, pp 15706-15711
	John P. Donoghue et al., "Neural Discharge and Local Field Potential Oscillations in Primate Motor Cortex During Voluntary Movements," The American Physiological Society, 1998, pp 159-173
	Nicolelis, Miguel A.L., "Trigeminal System Plasticity During Facial Anethesia," Department of Health and Human Services, Public Health Service, Grant No. 2 R01 DE11451-06, April, 1999
	Gregor Rainer et al., "Prospective Coding for Objects in Primate Prefrontal Cortex," The Journal of Neuroscience, Vol. 19, No. 13, July 1, 1999, pp 5493-5505
	John K. Chapin et al., "Real-time control of a robot arm using simultaneously recorded neurons in the motor cortex," Department of Neurobiology and Anatomy, MCP Hahnemann School of Medicine; and Department of Neurobiology, Duke University Medical Center, Nature Neuroscience, Volume 2, No. 7, July 1999, pp 664-670
	E. M. Maynard et al., "Neuronal Interactions Improve Cortical Population Coding of Movement Direction," The Journal of Neuroscience, Vol. 19, No. 18, September 15, 1999, pp. 8083-8093
	F. Gandolfo et al., "Cortical correlates of learning in monkeys adapting to a new dynamical environment," PNAS, Vol. 97, No. 5, February 29, 2000, pp 2259-2263
	J. F. Marsden et al., "Organization of Cortical Activities Related to Movement in Humans," The Journal of Neuroscience, Vol. 20, No. 6, March 15, 2000, pp 2307-2314
	D. Gareth Evans et al., "Controlling Mouse Pointer Position Using an Infrared Head-Operated Joystick," IEEE Transactions on Rehabilitation Engineering, Vol. 8, No. 1, March 2000, pp 107-117



Atty. Docket No.:	8790.0003-00	Appin. No.:		HECEIVED
Applicants:	John P. DONOGHUE et al.			SEP 0 4 2003
Filing Date:	November 14, 2001	Group:	3736	TECHNOLOGY CENTER RO700

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)
Qing Bai et al., "A High-Yield Microassembly Structure For Three-Dimensional Microelectrode Arrays," IEEE Transactions on Biomedical Engineering, Vol. 47, No. 3, March 2000, pp 281-289
Nicolelis, Miguel A.L., "Trigeminal System Plasticity During Facial Anethesia," Department of Health and Human Services, Public Health Service, Grant No. 2 R01 DE11451-07, April, 2000
Nicolelis, Miguel A.L., "Corticofugal Modulation of Tactile Sensory Processing," Department of Health and Human Services, Public Health Service, National Institute of Dental and Craniofacial Research of the National Institutes of Health, Grant No. 1 R01 DE013810-01 A1, June, 2000
Jonathan R. Wolpaw et al., "Brain-Computer Interface Technology: A Review of the First International Meeting," IEEE Transactions on Rehabilitation Engineering, Vol. 8, No. 2, June 2000, pp 164-173
Simon P. Levine et al., "A Direct Brain Interface Based on Event-Related Potentials," IEEE Transactions on Rehabilitation Engineering, Vol. 8, No. 2, June 2000, pp 180-185
Robert E. Isaacs et al., "Work Toward Real-Time Control of a Cortical Neural Prothesis," IEEE Transactions on Rehabilitation Engineering, Vol. 8, No 2, June 2000, pp 196-198
Scott Makeig et al., "A Natural Basis for Efficient Brain-Actuated Control, IEEE Transactions on Rehabilitation Engineering, Vol. 8, No. 2, June 2000, pp 208-211
Johan Wessberg et al., "Real-time prediction of hand trajectory by ensembles of cortical neurons in primates," Nature, Vol. 408, November 16, 2000, pp 361-365
Jerome N. Sanes et al., "Plasticity and Primary Motor Cortex," Annual Reviews, Neuroscience, Brown University Library, Vol. 23, 2000, pp 393-415
Jonathan C. Jarvis et al., "The application and technology of implantable neuromuscular stimulators: an introduction and overview," Medical Engineering & Physics, No. 23, January 11, 2001, pp 3-7
Miguel A. L. Nicolelis, "Real-time direct interfaces between the brain and electronic and mechanical devices could one day be used to restore sensory and motor functions lost through injury or disease. Hybrid brain-machine interfaces also have the potential to enhance our perceptual, motor and cognitive capabilities by revolutionizing the way we use computers and interact with remote environments," Nature, Vol. 409, January 18, 2001, pp 403-407
Gerald E. Loeb et al., "BION™ system for distributed neural prosthetic interfaces," Medical Engineering & Physics, Vol. 23, January 26, 2001, pp 9-18
Patrick J. Rousche et al., "Flexible Polyimide-Based Intracortical Electrode Arrays with Bioactive Capability," IEEE Transactions on Biomedical Engineering, Vol. 48, No. 3, March 2001, pp 361-371
Nicolelis, Miguel A.L., "Trigeminal System Plasticity During Facial Anethesia," Department of Health and Human Services, Public Health Service, Grant No. 2 R01 DE11451-08, April, 2001
Qing Bai et al., "Single-Unit Neural Recording with Active Microelectrode Arrays," IEEE Transactions on Biomedical Engineering, Vol. 48, No. 8, August 2001, pp 911-920



Atty. Docket No.:	8790.8092000	Appln. No.:	09/991,49	
Applicants:	John P. DONOGHUE et al.			SEP 0 4 2003
Filing Date:	November 14, 2001	Group:	3736	TECHNOLOGY CENTER R3700

	OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)
K	David L. Zealear et al., "The Biocompatibility, Integrity, and Positional Stability of an Injectable Microstimulator for Reanimation of the Paralyzed Larynx," IEEE Transactions on Biomedical Engineering, Vol. 48, No. 8, August 2001, pp 890-897
/	Dawn M. Taylor et al., "Using Virtual Reality to Test the Feasibility of Controlling an Upper Limb Fes System Directly from Multiunit Activity in the Motor Cortex," Arizona State University; and The Neurosciences Institute, Summer 2001, pp 1-3
	Ranu Jung et al., "Real-Time Interaction Between a Neuromorphic Electronic Circuit and the Spinal Cord," IEEE Transactions on Neural Systems and Rehabilitation Engineering, Vol. 9, No. 3, September 2001, pp 319-326
	Shay Shoham, "Advances Towards an Implantable Motor Cortical Interface," The University of Utah, December 2001, pp 1-157
	John K. Chapin et al., "Neural Prostheses for Restoration of Sensory and Motor Function," CRC Press, LLC, 2001, Chapters 6, 8 and 9, pp 179-219, pp 235-261, pp 263-283
	Andrew B. Schwartz et al., "Extraction algorithms for cortical control of arm prosthetics," The Neuroscience Institute; and Department of Bioengineering, Arizona State University, 2001, pp 701-707
	István Ulbert et al., "Multiple microelectrode-recording system for human intracortical applications," Journal of Neuroscience Methods, Vol. 106, 2001, pp 69-79
	Mijail D. Serruya et al., "Instant Neural Control of a Movement Signal," Nature, Vol. 416, March 14, 2002, pp 141-142
	Nicolelis, Miguel A.L., "Corticofugal Modulation of Tactile Sensory Processing," Department of Health and Human Services, Public Health Service, National Institute of Dental and Craniofacial Research of the National Institutes of Health, Grant No. 5 R01 DE013810-02, March, 2002
	Nicolelis, Miguel A.L., "Trigeminal System Plasticity During Facial Anethesia," Department of Health and Human Services, Public Health Service, Grant No. 2 R01 DE11451-09, April, 2002
	Dawn M. Taylor et al., "Direct Cortical Control of 3D Neuroprosthetic Devices," Science, Vol. 296, June 7, 2002, pp 1829-1832
	John P. Donoghue, "Connecting cortex to machines: recent advances in brain interfaces," Nature Neuroscience Supplement, Vol. 5, November 2002, pp 1085-1088
	Y. Gao, et al., "Probabilistic Inference of Hand Motion from Neural Activity in Motor Cortex," In Advances in Neural Information Processing Systems 14, The MIT Press, 2002, pp 1-8
	Mijail Serruya et al., "Robustness of neuroprosthetic decoding algorithms," Biological Cybernetics, 2003, pp 1-10
	Miguel A. L. Nicolelis, "Brain-machine interfaces to restore motor function and probe neural circuits," Nature Reviews, Neuroscience, Vol. 4, May 2003, pp 417-422
	Frank Wood et al., "On the Variability of Manual Spike Sorting," Brown University, Providence, RI, July 1, 2003, pp 1-19



Atty. Docket No.:	8790.0003-00	Appln. No.: 09/991,498
Applicants:	John P. DONOGHUE et al.	
Filing Date:	November 14, 2001	Group: 3736
	OTHER DOCUMENTS (Including	ng Author, Title, Date, Pertinent Pages, Etc.)
AS	Wei Wu et al., "Modeling and D Brown University, Providence, I	ecoding Motor Cortical Activity using a Switching Kalman Filter," RI, July 1, 2003, pp 1-30
Examiner ~	Fayway Sall	Date Considered 9/9/05
*Examiner: In th	itial if reference considered, whether	er or not citation is in conformance with MPEP 609; draw line and not considered. Include copy of this form with next

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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	U.S. PATENTS AND PUBLISHED U.S. PATENT APPLICATIONS						
Examiner Initials	Cite No.1	Document Number Number-Kind Code ² (if known)	Issue or Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear		
K		US-2002/0077620	06-20-2002	Sweeney et al.	r igaios reposi		
		US-2003/0004428	01-02-2003	Pless et al.			
		US-2003/0082507	05-01-2003	Stypulkowski			
\dashv		US-2003/0083724	05-01-2003	Jog et al.			
		US-3,837,339	09-24-1974	Alsenberg et al.			
		US-3,850,161	11-26-1974	Liss			
		US-4,055,175	10-25-1977	Clemens et al.			
		US-4,146,029	03-27-1979	Ellinwood, Jr.			
		US-4,294,245	10-13-1981	Bussey			
		US-4,360,031	11-23-1982	White			
		US-4,633,889	01-6-1987	Talalia et al.			
		US-4,690,142	09-1-1987	Ross et al.			
		US-4,837,049	06-6-1989	Byers et al.			
		US-4,865,048	09-12-1989	Eckerson	·		
		US-4,883,666	11-28-1989	Sabel et al.	-		
		US-4,969,468	11-13-1990	Byers et al.			
		US-5,081,990	01-21-1992	Deletis			
		US-5,119,832	06-09-1992	Xavier			
		US-5,156,844	10-20-1992	Aebischer et al.			
		US-5,423,877	06-13-1995	Mackey			
		US-5,445,608	08-29-1995	Chen et al.			
	<u> </u>	US-5,458,631	10-17-1995	Xavier			
7	 	US-5,474,547	12-12-1995	Aebischer et al.			
		US-5,697,951	12-16-1997	Harpstead et al.			
		US-5,702,432	12-30-1997	Chen et al.			
1		US-5,713,923	02-03-1998	Ward et al.			
		US-5,797,898	08-25-1998	Santini, Jr. et al.			
		US-5,814,089	09-29-1998	Stokes et al.			
1		US-6,086,582	06-11-2000	Altman et al.			

Examiner Signature	Janen	would the	Date Considered	9/9/05

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

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	Complete if Known	OIPE
Application Number	09/991,498	7
Filing Date	November 14, 2001	Jul.
First Named Inventor	John P. Donoghue	P 5 2005
Art Unit	3736	12
Examiner Name	Unassigned	(4) (45)
Attorney Docket Number	8790.0003-00	HADEMARK

	U.S. PATENTS AND PUBLISHED U.S. PATENT APPLICATIONS					
Examiner Cite		Issue or	Name of Patentee or	Pages, Columns, Lines, Where		
Initials	No.¹	Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Applicant of Cited Document	Relevant Passages or Relevant Figures Appear	
15		US-6,091,015	07-18-2000	del Valle et al.		
47		US-6,094,598	07-25-2000	Elsberry et al.		
T		US-6,263,237	07-17-2001	Rise		
1 .		US-6,309,410	10-30-2001	Kuzma et al.		
		US-6,313,093	11-06-2001	Frey, II	· · · · · · · · · · · · · · · · · · ·	
		US-6,319,241	11-20-2001	King et al.		
		US-6,356,784	03-12-2002	Lozano et al.		
		US-6,366,813	04-02-2002	DiLorenzo	· · · · · · · · · · · · · · · · · · ·	
	1	US-6,436,708	08-20-2002	Leone et al.		
		US-6,480,743	11-12-2002	Kirkpatrick et al.		
T		US-6,577,893	06-10-2003	Besson et al.		
1	-	US-6,620,415	09-16-2003	Donovan		

Note: Copies of the U.S. Patent Documents are not Required in IDS filed after October 21, 2004

	FOREIGN PATENT DOCUMENTS									
Examiner Initials	Cite No. ¹	Foreign Patent Document Country Code ³ Number ⁴ Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	Translation ⁶				
11		WO 01/43635	06-21-2001	Partha						
1		WO 01/60445	08-23-2001	Neurodan A/S						
1		WO 01/93756 A2	12-13-2001	Nexan Limited						
		WO 02/093312 A2	11-21-2002	Hill-Rom Services, Inc.						
7		WO 02/100267 A1	12-19-2002	Compumedics Limited						
		WO 03/061465 A2	07-31-2003	GMP Companies, Inc.		_				

NON PATENT LITERATURE DOCUMENTS						
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	Translation ⁸			
AS		Jose M. Carmena et al., "Learning to Control a Brain-Machine Interface for Reaching and Grasping by Primates," PLOS Biology, Vol. 1, Issue 2, October 13, 2003, pp 1-16				

		1'.//		
Examiner Signature	- Santongul	holl	Date Considered	9/9/05

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 2 of 3

Complete if Known IDS Form PTO/SB/08: Substitute for form 1449A/PTO Application Number 09/991,498 November 14, 2001 Filing Date INFORMATION DISCLOSURE First Named Inventor John P. Donoghue STATEMENT BY APPLICANT 3736 Art Unit (Use as many sheets as necessary) Examiner Name Unassigned Attorney Docket Number 8790.0003-00

		NON PATENT LITERATURE DOCUMENTS				
Examiner Cite No.1		Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.				
45		Libet, Benjamin, "Unconscious Cerebral Initiative and the Role of Conscious Will in Voluntary Action," The Behavioral and Brain Sciences 1995) 8, pp. 529-566				
	•	Norretranders, Tor, "The User Illusion," Penguin Books, 1991, Chapter 12, pp. 310-328				
		Mohammad Mojarradi, "A Miniaturized Neuroprosthesis Suitable for Implantation Into the Brain," IEEE Transactions on Neural Systems and Rehabilitation Engineering, Vol. 11, No. 1, March 2003				
		Morten K. Haugland et al., "Cutaneous Whole Nerve Recordings Used for Correction of Footdrop in Hemiplegic Man," IEEE Transactions on Neural Systems and Rehabilitation Engineering, Vol. 3, No. 4, December 1995				
		Miguel A. L. Nicolelis, "Brain-Machine Interfaces to Restore Motor Function and Probe Neural Circuits," Nature Reviews, Neuroscience, Vol. 4, May 2003, pp. 417-422				
Į .	··-					

¹ Applicant's unique citation designation number (optional).

Sheet

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² See Kinds Codes of USPTO Patent Documents at <u>www.uspto.gov</u> or MPEP 901.04.

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Atty. Docket No.:	8790.0003-00	Appln. No.:	09/991,498
Applicants:	John P. DONOGHUE et al.		
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			U.S. PATEN	P DOCUMENTS			
Examiner Initial*		Document Number	Issue Date	Name	Class	Sub Class	Filing Date # Appropriate
	Ŧ	4,461,304	7/24/84	Kuperstein			
	T	4,878,913	11/7/89	Aebischer et al.			
		5,037,376	8/6/91	Richmond et al.			
		5,215,088	6/1/93	Normann et al.			
	Τ	5,325,865	7/5/94	Beckman et al.			
	Z	5,361,760	11/8/94	Normann et al.			
	Т	5,617,871	4/8/97	Burrows			
	Γ	5,638,826	6/17/97	Wolpaw et al.			
		5,687,291	11/11/97	Smyth			
		5,692,517	12/2/97	Junker			
	Ţ	5,735,889	4/7/98	Howard, III et al.			
		5,758,651	6/2/98	Nygard et al.			
		5,843,093	12/1/98	Howard, III			
		5,843,142	12/1/98	Sultan			
		5,855,801	1/5/99	Lin et al.			
		5,873,840	2/28/89	Neff			
		5,928,228	7/27/90	Kordis et al.			
		5,938,688	8/17/99	Schiff	Î		*****
		5,978,689	8/17/99	Fischell et al.			
		5,938,690	8/17/99	Law et al.			
	Z	6,001,065	12/14/99	DeVito			
		6,006,124	12/21/99	Fischell et al.			
		6,016,449	1/18/2000	Fischell et al.			· · · · · · · · · · · · · · · · · · ·
		6,024,700	2/15/2000	Nemirovski et al.			· ····
		6,024,702	2/15/2000	Iversen			•
		6,027,456	2/22/2000	Feler et al.			
	7	8,938,477	3/14/2000	Kayyali			· · · · · · · · · · · · · · · · · · ·

Page 1 of 9

INFORMATION DISCLOSURE CITATION

Atty. Docket No.:	8790.0003-00	Appln. No.:	09/991,498	
Applicants:	John P. DONOGHUE et al.			
Filing Date:	November 14, 2001	Group:	3736	

U.S. PATENT DOCUMENTS							
Examiner Initial*		Document Number	Issue Date	Name	Class	Sub Class	Filing Date If Appropriate
7	Ŧ	6,061,593	5/9/2000	Fischell et al.			
7	T	6,092,058	7/18/2000	Smyth			· · · · · · · · · · · · · · · · · · ·
	Т	6,113,553	9/5/2000	Chubbuck			
1	Τ	6,125,300	9/26/2000	Weijand et al.			
	T	6,128,538	10/3/2000	Fischell et al.			
	X	6,134,474	10/17/2000	Fischell et al.			<u> </u>
	T	6,154,678	11/28/2000	Lauro			·
		6,481,045	12/12/2000 /	Fischell et al.			
	Τ	6,168,725	12/19/2000	Peckham et al.			· · · · · ·
-		6,169,961	1/2/2001/	Werbos			···
		6,171,239	1/9/20ø1	Humphrey			,
		6,175,762	1/18/2001	Kirkup et al.			
		6,181,965	1/30/2001	Loeb et al.			
		6,185,455	2/6/2001	Loeb et al.			
		6,216,045	a(10/2001	Black et al.			
	П	6,224,549	5/1/2001	Drongelen			
	Ц	6,240,315	5/29/2001	Mo et al.			
	Ш	6,254,536	7/3/2001	DeVito		•	
	\coprod	6,280,394	8/28/2001	Maloney et al.			· · · · · · · · · · · · · · · · · · ·
		8/353,754	3/5/2002	Fischell et al.			
		6,354,2 99	3/12/2002	Fischell et al.			
	\prod	6,358,202	3/19/2002	Alent			
	\prod	6,360,122	3/19/2002	Fischell et al.			
		6,427,086	7/30/2002	Fischell et al.			
		6,459,936	10/1/2002	Fischell et al.			
		6,466,822	10/15/2002	Pless			
	4	6,473,639	10/29/2002	Fischell et al.			 -

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PAGE 5/12 * RCVD AT 3/9/2004 1:48:13 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/0 * DNIS:8729306 * CSID:202 408 4400 * DURATION (mm-ss):07-04

Atty. Docket No.:	8790.0003-00	Appin. No.:	09/991,498
Applicants:	John P. DONOGHUE et al.		
Filing Date:	November 14, 2001	Group:	3736

		U.S. PATEN	T DOCUMENTS		-	
Examiner Initial*	Document Number	Issue Date	Name	Class	Sub Ctass	Filing Date If Appropriate
	6,480,743	11/12/2002	Kirkpatrials et al. —			

	OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)
$\overline{}$	U.S. Patent Application Publication No. US 2001/0929368 A1, September 29, 2901, Slack et al.
_	U.S. Patent Application Publication No. US 2001/0027336 A1, October 4, 2001, Gielen et al.
	U.S. Patent Application Publication No. US 2001/0029391 A1, October 11, 2001, Gluckman et a
	U.S. Patent Application Publication No. US 2001/0051819 A1, December 13, 2007, Fischell et a
	U.S. Patent Application Publication No. US 2001/0056290 A1, December 27, 2001, Fischell et a
	U.S. Patent Application Publication No. US 2002/0002390 A1, January 3, 2002, Fischell et al.
_	U.S. Patent Application Publication No. US 2002/0013612 A1, January 31, 2002, Whitehurst
	U.S. Patent Application Publication No. US 2002/0016638 A1, February 7, 2002, Mitra et al.
_	U.S. Patent Application Publication No. US 2002/0099412/A1, July 25, 2002, Fischell et al.
	U.S. Patent Application Publication No. US 2002/0168485, November 14, 2002, Pless et al.
	U.S. Patent Application Publication No. US 2003/0083716, May 1, 2003, Nicolelis et al.
	U.S. Patent Application Publication No. US 2003/0093129, May 15, 2003, Nicolelis et al.
	International Publication No. WO 03/035185, May 1, 2003, Nicolelis et al.
	International Publication No. WO 93/037231, May 8, 2003, Nicolelis et al.
	Kensall D. Wise et al., "An Integrated-Circuit Approach to Extraceullar Microelectrodes," IEEE Transactions on Biomedical Engineering, Vol. BME-17, No. 3, July 1970, pp 238-247
	Donald R. Humphrey et al., "Predicting Measures of Motor Performance from Multiple Cortical Spike Trains," Science, New Series, Volume 170, Issue 3959, November 13, 1970, pp 758-762
٠	A. Bohg, "Ethyrene Diamine-Pyrocatechol-Water Mixture Shows Etching Anomaly in Boron-Dope Silicon," Journal of the Electrochemical Society, Vol. 118, No. 2, February 1971, pp 401-402
	Donald R. Humphrey, "Relating Motor Cortex Spike Trains to Measures of Motor Performance," Department of Physiology, Emory University, Brain Research, No. 40, 1972, pp. 7-18
_	Arnold Starr et al., "An Evaluation of Photoengraved Microelectrodes for Extracellular Single-Unit Recording," IEEE Transactions on Biomedical Engineering, Vol. BME-20, No. 4, July 1973, pp 291-293
	Kensall D. Wise et al., "A Low-Capacitance Multielectrode Probe for Use in Extracellular Neurophysiology," IEEE Transactions on Biomedical Engineering, Vol. BME-22, No. 3, May 1971 pp 212-219

Page 3 of 9

Atty. Docket No.:	8790.0003-00	Appin. No.:	09/991,498
Applicants:	John P. DONOGHUE et al.		
Filing Date:	November 14, 2001	Group:	3736

Filing Date:	November 14, 2001	Group: 3736		
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)				
	V. B. Mountcastle et al., "Posterior Paristal Association Cortex of the Monkey: Command Functions for Operations Within Extrapersonal Space," The Journal of Neurophysiology, Vol. 89, No. 4, 1975, pp 871-908			
		Recording From Motor Cortex as a Possible Source of Signats nals of Biomedical Engineering, Vol. 8, 1980, pp. 339-349		
		ct of behavioural arousal on the activity of hypothalamic moving rats and rabbits," Proceedings of the Royal Society of es, January 1982, pp 263-272		
	Spencer L. BeMent, et al., "Solid-Sta Neuronal Recording," IEEE Transac February 1886, pp 230-241	ate Electrodes for Multichannel Multiplexed Intracortical tions on Biomedical Engineering, Vol. BME-33, No. 2,		
	Apostolos P. Georgopoulos et al., "N Vol. 233, September 26, 1986, pp 14	Neuronal Population Coding of Movement Direction," Science, 416-1419		
		ce of Planar Multisité Microprobes in Recording Extracellular EE Transactions on Biomedical Engineering, Vol. 35, No. 9,		
	Patrick K. Campbell et al., "A dyronic Biomed. Material Res.: Applied Bion	c intracortical electrode array: Preliminary results," Journal of materials, Vol. 23, No. 2, 1989, pp 245-259		
	Andrew R. Mitz et al., "Learning-dependent Neuronal Activity in the Premotor Cortex: Addring the Acquisition of Conditional Motor Associations," The Journal of Neuroscience, No. 6, June 1991, pp 1855-1872 Patrick K. Campbell et al., "A Silicon-Based, Three-Dimensional Neural Interface: Manu Processes for an Intracortical Electrode Array," INSEE Transactions, 1991, pp 758-768			
	A. C. Hoogerwari et al., A Three-Dir pp 120-123	mensional Neural Recording Array," IEEE Transactions, 1991,		
	Gregory T. A. Koyacs et al., "Regens and Stimulation," Transactions on Bit 893-902	eration Microelectrode Array for Peripheral Nerve Recording omedical Engineering, Vol. 39, No. 9, September 1992, pp		
	Kelly E. Jones et al., "A Glass/Silicon Biomedical Engineering. Vol. 20, 199	Composite Intracortical Electrode Array," Annals of 32, pp 423-437		
	Miguel A. L. Nicolelis et al., "Induction by peripheral block of ascending cuta 1993, pp 533-536	n of immediate spatiotemporal changes in thalamic networks aneous information," Letters to Nature, Vol. 361, February 11,		
		hod for the insertion of multiple microprobes into geural and rodes, fine wires, needles and microsensors," Journal of 1. 1/2, 1993, pp 175-179		
	Craig T. Nordhausen et al., "Optimizin Array," Brain Research, Vol. 637, Nos	ng recording capabilities of the Utah Intracortical Electrode s. 1/2, February 21, 1994, pp 27-36		

Page 4 of 9

Atty. Docket No.:	8790.0003-00	Appin. No.:	09/991,498
Applicants:	John P. DONOGHUE et al.		
Filing Date:	November 14, 2001	Group:	3736

Filing Date:	November 14, 2001	Group: 3736	
<u></u>	OTHER DOCUMENTS (Including Au	Ithor, Title, Date, Pertinent Pages, Etc.)	
\	Jamillo F. Hotke et al., "Silicon Ribbon Cables for Chronically Implantable Microelectrode Arrayo IEEE Transactions on Biomedical Engineering, Vol. 41, No. 4, April 1994, pp 314-321		
Miguel A. L. Nicolelis et al., "Spatiotemporal Structure of Somatosensory Responses of Neuron Ensembles in the Rat Ventral Posterior Medial Nucleus of the Thalamus," The Neuroscience, Vol. 14, No. 8, June 1994, pp 3511-3532			
		Dimensional Microelectrode Array for Chronic Neural omedical Engineering, Vol. 41, No. 12, December 1994, pp	
	arm movements: evidence for repres Neurology, Neurosurgary, and Physic The Minnesota Epilepsy Group of Un Control Section, National Institute of I	oscillations in human motor cortex furing two-dimensional tentation of kinematic parameters," Departments of plogy, University of Minnesota; MINCEP Epilepsy Care, P.A.; ited and St. Paul Children's Hospital; and Human Motor Neurological Disorders and Stroke, National Institutes of Clinical Neurophysiology, No. 93, 1994, pp 390-403	
	Anthony L. Owens et al., "Multi-electriferret primary auditory cortex." Journa 209-220	ode array for measuring evoked potentials from surface of all of Neuroscience Methods, Vol. 58, Nos. 1/2, May 1995, pp	
	Miguel A. L. Nicolelis et al., "Sensorin Multiple Levels of the Somatosensory	notor Encoding by Synchronous Neural Ensemble Activity at System," Science, Vol. 268, June 2, 1995, pp 1353-1358	
	Jerome N. Sanes et al., "Shared Neur Cortex," Science, Vol. 268, June 23,	ral Substrates Controlling Hand Movements in Human Motor 1995, pp 1775-1777	
	Theory and Application to the Study of	or the Analysis of Mixed Time Series/Point Process Data- of Physiological Tremor, Single Motor Unit Discharges and ysics Molecular Biology, Vol. 64, Nos. 2/3, 1985, pp 237-278	
		for Three-Dimensional Microelectrode Arrays," Solid-State n Head, South Carolina, June 2-6, 1996, pp 262-265	
•	Changhyun Kim et al., "A 64-Site Multi Journal of Solid State Circuits, Vol. 31	tishank CMOS Low-Profile Neural Stimulating Probe," IEEE , No. 9, September 1996, pp 1230-1238	
	Gwo-Ching Chang et al., "Real-time in control command of man-machine into 529-537	nplementation of electromyogram pattern recognition as a erface," Medical Engineering Phys., Vol. 18, No. 7, 1986, pp	
	P. Nisbet, "Integrating assistive technology." Phys., Vol. 18, No. 3, 1998, pp 193-20	ologies: current practices and future possibilities," Med. Eng. 02	
	Miguel A. L. Nicolelis et al., "Reconstri Neuron Recordings," Neuron, Vol. 18,	ucting the Engram: Simultaneous, Multisite, Many Single April 1997, pp 529-537	
		ndon Tension with an Implantable Intratendon Probe and its s," IEEE Transactions on Rehabilitation Engineering, Vol. 5,	

INFORMATION DISCLOSURE CITATION

Atty. Docket No.:	8790.0003-00	Appln. No.:	09/991,498
Applicants:	John P. DONOGHUE et al.		
Filing Date:	November 14, 2001	Group:	3736

- Date.	14,2001 Group. 0700
ě	OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)
	Barbara M. Faggin et al., "Immediate and simultaneous sensory reorganization at cortical and subcortical levels of the somatosensory system," Proc. Natl. Acad. Science USA, Vol. 94, August 1997, pp 9428-9433
	Nicotelis, Miguel A.L., "Trigeminal System Ptasticity During Facial Anethesia," Department of Health and Human Services, Public Health Service, Grant No. 2 R01 DE11451-05, Including Summary Statement, October, 1997
	Robert M. Bradley et al., "Long term chronic recordings from peripheral sensory libers using a sieve electrode array," Journal of Neuroscience Methods, Vol. 73, 1997, pp 177-186
	David K, Warland et al., "Decoding Visual Information From a Population of Retinal Ganglion Cells," The American Physiological Society, 1997, pp 2336-2350
	Steven P. Wise et al., "Premotor and Parietal Cortex: Cortiococortical Connectivity and Combinatorial Computations," Annual Review of Neuroscience, Vol. 20, 1997, pp 25-42
	P. R. Kennedy et al., "Restoration of neural output from a paralyzed patient by a direct brain connection," NeuroReport, Vol. 9, No. 8, June 1998 pp 1767-1711
	Paolo Dario et al., "Neural interfaces for Regenerated Nerve Stimulation and Recording," IEEE Transactions on Rehabilitation Engineering, Vol. 6, No. 4, December 1998, pp 353-363
	Nicholas G. Halsopoulos et al., "Information about movement direction obtained from synchrono activity of motor contical neurons," Proc. Natl. Acad. Sci. USA, Vol. 95, December 1998, pp 15706-15711
	John P. Donoghue et al., "Neural Discharge and Local Field Potential Oscillations in Primate Mo Cortex During Voluntary Movements," The American Physiological Society, 1998, pp 158-173
	Nicolelis, Miguel A.L., "Trigeminal System Plasticity During Facial Anethesia," Department of Health and Human Services, Public Health Service, Stant No. 2 R01 DE11451-06, April, 1999
	Gregor Rainer et al., "Prospective Coding for Objects in Primate Prefrontal Cortex," The Journal Neuroscience, Vol. 19, No. 13, July 1, 1999, pp 5493-5505
	John K. Chapin et al., "Real-time control of a robot arm using simultaneously recorded neurons in the motor cortex," Department of Neurobiology and Anatomy, MCP Hahnemann School of Medicine; and Department of Neurobiology, Duke University Medical Center, Nature Neuroscient Volume 2, No. 7, July 1999, pp 664-670
	E. M. Maynard et al., *Neuronal Interactions Improve Cortical Population Coding of Movement Direction,* The Journal of Neuroscience, Vol. 19, No. 18, September 15, 1999, pp. 8083-8093
	F. Candoffo et al., *Cortical correlates of learning in monkeys adapting to a new dynamical environment,* PNAS, Vol. 97, No. 5, February 29, 2000, pp 2259-2263
	J. F. Marsden et al., "Organization of Cortical Activities Related to Movement in Humans, The Journal of Neuroscience, Vol. 20, No. 6, March 15, 2000, pp 2307-2314
/ .	D. Gareth Evans et al., "Controlling Mouse Pointer Position Using an Infrared Head-Operated Joystick," IEEE Transactions on Rehabilitation Engineering, Vol. 8, No. 1, March 2000, pp 107-1

Page 6 of 9

INFORMATION DISCLOSURE CITATION

Atty. Docket No.:	8790.0003-00	Appln. No.:	09/991,498
Applicants:	John P. DONOGHUE et al.		
Filing Date:	November 14, 2001	Group:	3736

Filing Date:	November 14, 2001 Group: 3/36
	OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)
	Qing Bai et al., "A High-Yield Mioreassembly Structure For Three Dimensional Microelectrode Arrays," IEEE Transactions on Biomedical Engineering, Vol. 47, No. 3, March 2000, pp 281-289
	Nicolelis, Miguel A.L., "Trigeminal System Plasticity During Facial Anethesia," Department of Health and Human Services, Public Health Services, Grant No. 2 R01 DE11451-07, April 2000
	Nicoletis, Miguel A.L., "Corticofugal Modulation of Tactile Sensory Processing," Department of Health and Human Services, Public Health Service, National Institute of Dental and Craniofacial Research of the National Institutes of Health, Grant No. 1 R01 DE013810-01 A1, June, 2000
	Jonathan R. Wolpaw et al., "Brain-Computer Interface Technology: A Review of the First International Meeting," IEEE Transactions on Rehabilitation Engineering, Vol. 8, No. 2, June 2000, pp 164-173
	Simon P. Levine et al., "A Direct Brain Interface Based on Event-Delated Potentials," IEEE Transactions on Behabilitation Engineering, Vol. 8, No. 2, June 2000, pp 180-185
•	Robert E. Isaacs et al., "Work Toward Real-Time Control of a Cortical Neural Prothesis," IEEE Transactions on Rehabilitation Engineering, Vol. 8, No 2, June 2000, pp 196-198
	Scott Makeig et al., "A Natural Basis for Efficient Brain-Actuated Control, IEEE Transactions on Rehabilitation Engineering, Vol. 8, No. 2, June 2000, pp 208-211
	Johan Wessberg et al., "Real-time prediction of hand trajectory by ensembles of cortical neurons in primates," Nature, Vol. 408, November 18, 2000, pp 361-365
	Jerome N. Sanes et al., "Plasticity and Primary Motor Cortex," Annual Reviews, Neuroscience, Brown University Library, Vol. 23, 2000, pp 393-415
	Jonathan C. Jarvis et al., "The application and technology of implantable neuromuscular stimulators: an introduction and overview," Medical Engineering & Physics, No. 23, January 11, 2001, pp 3-7
	Miguel A. L. Nicolelis, 'Real-time direct interfaces between the brain and electronic and mechanical devices could one day be used to restore sensory and moto functions lost through injury or disease. Hybrid brain-machine interfaces also have the potential to enhance our perceptual, moto and cognitive capabilities by revolutionizing the way we use computers and interact with remote environments, Nature, Vol. 409, January 18, 2001, pp 403-407
	Gerald 5. Loeb et al., *BION™ system for distributed neural prosthetic interfaces,* Medical Engineering & Physics, Vol. 23, January 26, 2001, pp 9-18
	Patrick J. Rousche et al., "Flexible Polyimide-Based Intracortical Electrode Arrays with Bioactive Capability," IEEE Transactions on Biomedical Engineering, Vol. 48, No. 3, March 2001, pp 361-37
	Nicolelis, Miguel A.L., "Trigeminal System Plasticity During Facial Anethesia," Department of Health and Human Services, Public Health Service, Grant No. 2 R01 DE11451-08, April, 2001
	Qing Bai et al., "Single-Unit Neural Recording with Active Microelectrode Arrays," IEEE Transactions on Blomedical Engineering, Vol. 48, No. 8, August 2001, pp 011 020

Page 7 of 9

Atty. Docket No.:	8790.0003-00	Appin. No.:	09/991,498
Applicants:	John P. DONOGHUE et al.		
Filing Date:	November 14, 2001 .	Group:	3736

OTHER DOCUMENTS (Including Au	ithor Title Deta	
	iuioi, ilus, cau	s, Partinent Pages, Etc.)
David L. Zealear et al., "The Biocompatibility, Integrity, and Positional Stability of an Injecta Microstimulator for Reanimation of the Paralyzed Larynx," IEEE Transactions on Blomedica Engineering, Vol. 48, No. 8, August 2001, pp 890-897		
Fes System Directly from Multiunit Ac	ctivity in the Moto	ne Feasibility of Controlling an Upper Limb or Cortex,* Arizona State University, and The
Renu Jung et al., "Real-Time Interacti Cord." IEEE Transactions on Neural S September 2001, pp 319-326	ion Between a N Systems and Re	leuromorphic Electronic Circuit and the Spinal habilitation Engineering, Vol. 9, No. 3,
Shay Shohem, "Advances Towards at Utah, December 2001, pp 1-157	n Implantable M	otor Cortical Interface," The University of
John K. Chapin et al., "Neural Prosthe Press, LLC, 2001, Shapters 6, 8 and	eses for Restora 9, pp 179-219, p	tion of Sensory and Motor Function," CRC p 235-281, pp 263-283
Andrew B. Schwartz et al., "Extraction Neuroscience Institute; and Departme 701-707	n algorithms for cont of Bioengines	control of arm prosthetics," The armg, Arizona State University, 2001, pp
Istvan Ulbert et al., "Multiple microelect Journal of Neuroscience Methods, Vo	ctrode-recording I. 106, 2001, pp	system for human intracortical applications,* 69-79
Mijeli D. Serruya et al., "Instant Neural 2002, pp 141-142	Control of a Mo	vement Signal," Nature, Vol. 416, March 14,
Health and Human Services. Public H	ealth Service. No	ational Institute of Dantal and Craniofacial
Nicolells, Miguel A.L., "Trigeminal Sys Health and Human Services, Public Ho	lem Plasticity Du ealth Service, G	ing Fecial Anethesia," Department of rank No. 2 R01 DE11451-09, April, 2002
Dawn M. Taylor et al., "Direct Cortical June 7, 2002, pp. 1829-1832	Control of 3D No	europrosthetic Devices," Science, Vol. 296,
John P. Donoghue, "Connecting cortex Neuroscience Supplement, Vol. 5, Nov	x to machines: r vember 2002, pp	recent advances in brain interfaces," Nature 1085-1088
Y. Gap, et al., "Probabilistic Inference of Advances in Neural Information Proces	of Hand Motion I ssing Systems 1	from Neural Activity to Motor Cortex," In 4, The MIT Press, 2002, pp 1-8
Mijail Serruya et al., "Robustness of ne 2003, pp 1-10	suroprosthetic de	ecoding algorithms," Biological Cybernelics,
Miguel A. L. Nicolalis, "Brain-machine i circuits," Nature Reviews, Neuroscience	interfaces to resi ca, Vol. 4, May 2	tore motor function and probe neural 003, pp 417-422
Frank Wood et al., "On the Variability of July 1, 2003, pp 1-19	of Manual Spike	Sorting,* Brown University, Providence, RI,
	Microstimutator for Reanimation of the Engineering, Vol. 48, No. 8, August 2 Dawn M. Taylor et al., "Using Virtual Fee System Directly from Multiunit As Neurosciences Institute, Summer 200 Ranu Jung et al., "Real-Time Interact Cord." IEEE Transactions on Neural September 2001, pp 319-326 Shay Shoham, "Advances Towards a Utah, December 2001, pp 1-157 John K. Chapin et al., "Neural Prostin Press, LLC, 2001, Shapters 6, 8 and Andrew B. Schwartz et al., "Extraction Neuroscience Institute; and Departmen 701-707 Istvan Ulbert et al., "Multiple microeled Journal of Neuroscience Methods, Vol. Mijail D. Serruya et al., "Instant Neura 2002, pp 141-142 Nicolelis, Miguel A.L., "Corticofugal Mealth and Human Services, Public Health and Human Services, Public Howard Human Services, Neuroscience Advances in Neural Information Proce	Microstimulator for Reanimation of the Paralyzed Lan Engineering, Vol. 48, No. 8, August 2001, pp 890-897 Dawn M. Taylor et al., "Using Virtual Reality to Test the System Directly from Multiunit Activity in the Moto Neurosciences Institute, Summer 2001, pp 1-3 Ranu Jung et al., "Real-Time Interaction Between a Neuroscience Institute, Summer 2001, pp 1-3 Ranu Jung et al., "Real-Time Interaction Between a Neuroscience Institute, Summer 2001, pp 1-157 John K. Chapin et al., "Neural Prostheses for Restoral Press, LLC, 2001, Chapters 6, 8 and 9, pp 179-219, pp 201-201, pp 1-157 John K. Chapin et al., "Neural Prostheses for Restoral Press, LLC, 2001, Chapters 6, 8 and 9, pp 179-219, pp 201-201,

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Atty. Docket No.:	8790.0003-00	Appin. No.: 09/991,498
Applicants:	John P. DONOGHUE et al.	
Filing Date:	November 14, 2001	Group: 3736
	OTHER DOCUMENTS (Including A	uthor, Title, Date, Pertinent Pages, Etc.)
	Wel Wu et al., "Medeling and Deced Brown University, Providence, RI, J.	ling Meter Certicel Activity using a Switching Kalman Filter," dy 1,2969, pp 1-30
Examiner	faux normalles	Date Considered 9 4 105
th	itial if reference considered whether or rough citation if not in confermance and mmunication to applicant.	not citation is in conformance with MPEP 609; draw line not considered. Include copy of this form with next
Form PTO 1449	Patent an	d Trademark Office - U.S. Department of Commerce